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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/036,492	01/07/2002	Adriana Silva Hemerly	217943US0X CONT	3581

22850 7590 04/13/2004

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EXAMINER	
COLLINS, CYNTHIA E	
ART UNIT	**PAPER NUMBER**
1638	

DATE MAILED: 04/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/036,492	HEMERLY ET AL.	
	Examiner	Art Unit	
	Cynthia Collins	1638	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 January 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-28* is/are pending in the application.

4a) Of the above claim(s) *1-9,12,13,16 and 22* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *10,11,14,15,17-21 and 23-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *07 January 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *01/02*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Applicant's election with traverse of Group VII, claims 14-15, 17-21 and 23-28, and SEQ ID NO:6, filed January 16, 2004, is acknowledged. The traversal is on the ground(s) that Groups I, V and VII should be rejoined. Applicant argues that Groups V and VII should be rejoined because Group V is directed to a DNA coding for a specified product, whereas Group VII is directed to a vector comprising the DNA of Group V, such that both Groups may be searched concurrently without serious burden (reply page 2). Applicant additionally argues that that while Group I is directed to materials comprising amino acids, the search and examination of Group I would overlap the search of Groups V and VII such that all three Groups may be searched concurrently without serious burden (reply page 2).

Applicant's arguments are found only partially persuasive. The products of Group I, drawn to an at least partially purified protein or a peptide, are classified separately from the products of Groups V and VII, and thus require a separate search. Accordingly, the restriction requirement with respect to Group I is maintained. However, since Group VII is directed to a vector comprising the DNA of Group V, the restriction requirement with respect to Group V has been reconsidered. Group V, claims 10-13, is drawn to a non-genomic DNA sequence encoding a protein or a peptide. Because claims 10 and 11 of Group V are directed to the elected sequence and can be searched concurrently with the elected invention without serious burden, claims 10 and 11 are rejoined with the claims of Group VII and are examined concurrently. Since claims 12 and 13 of Group V are directed to nonelected sequences that require a separate search, the restriction requirement is maintained with respect to claims 12 and 13.

The traversal is also on the ground(s) that Groups (A)-(J) should be rejoined, and Applicant points in particular to MPEP 803.04 as allowing for the search and examination of up to ten distinct nucleotide sequences in a single application (reply page 3). Applicant additionally argues that the sequences should be examined together because they are capable of being used together, and Applicant asserts that any of sequences (A)-(J) would behave the same way if used in the methods of the present invention, or if used for hybridization purposes (reply pages 3-4). Applicant additionally argues that the Examiner has provided no proof that the sequences of (A)-(J) would have different effects, and asserts that there is substantial identity and sequence similarity between the claimed sequences. Applicant additionally points out that the different groups (A)-(J) represent the same class of proteins, namely CDC27 proteins, and argues that because groups (A)-(J) refer to a novel genus of proteins, namely plant CDC27 proteins, the requirement for restriction between the sequences is improper. (reply pages 4-5)

With respect to MPEP 803.04 as allowing for the search and examination of up to ten distinct nucleotide sequences in a single application, this point is not found persuasive because resource allocations at the PTO have changed since the publication of MPEP 803.04, and the examination of 10 sequences on the merits in the instant application would now present a burden on PTO resources.

With respect to the sequences being capable of being used together, behaving in the same manner, being similar in structure, and belonging to the same class of proteins, this point is not found persuasive because the sequences (A)-(J) differ in structure. Structurally distinct sequences are presumed to be patentably distinct, and as such to require a separate search, even though each sequence may correspond to the same or a related class of proteins, and even though the

sequences may be similar in function. See pages 3-4 of the office action mailed October 16, 2003.

With respect to the assertion that no proof is provided that the sequences of (A)-(J) would have different effects, this point is not found persuasive because sequences (A)-(J) differ in structure. Sequences that differ structurally are presumed to differ functionally. For example, the sequences of SEQ ID NOS: 6 and 7 correspond to exons located at opposite ends of the CDC27A1 protein encoded by SEQ ID NO:9, and as such they would be expected to function differently when expressed separately as peptides, rather than concurrently when expressed as part of the same protein. See, for example, page 6 of the specification, which suggests that a protein comprising SEQ ID NO:6 (such as the protein encoded by SEQ ID NO:9, for example) may promote APC substrate action and DNA replication, whereas a peptide comprising only SEQ ID NO:6 may inhibit APC substrate action and DNA replication.

With respect to the assertion that groups (A)-(J) refer to a novel genus of proteins, namely plant CDC27 proteins, this point is not found persuasive because the claims are not directed to sequences encoding plant CDC27 proteins, but to sequences encoding proteins and peptides of a particular structure. Furthermore, sequences encoding CDC27 proteins are not considered novel, as sequences encoding CDC27 proteins from diverse groups of organisms, including at least one from plants, were known in the art at the time of filing (see the specification at pages 2-3 and 6, for example).

Accordingly, claims 1-9, 12-13, 16 and 22, and the nonelected sequences, are withdrawn from consideration as being directed to nonelected inventions.

The requirement is still deemed proper and is therefore made FINAL.

Claim Objections

Claim 10 is objected to because of the following informalities: the claim is directed to nonelected sequences. Appropriate correction is required.

Claims 10 and 19 are objected to because of the following informalities: the claims depend from nonelected claims. Appropriate correction is required.

Claims 10, 15, 17, 18, 20, 23 and 24 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim should refer to other claims in the alternative only and/or cannot depend from any other multiple dependent claim. See MPEP § 608.01(n).

Information Disclosure Statement

An initialed and dated copy of Applicant's IDS form 1449, filed January 7, 2002 is attached to the instant Office action.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 10-11, 14-15, 17-21 and 23-28 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The claims are drawn to a DNA vector comprising a non-genomic DNA sequence coding for a protein or peptide comprising an amino acid sequence of SEQ ID NO:6 or an amino acid sequence having at least 50% amino acid sequence identity thereto, or a DNA sequence having at least 75% nucleotide sequence identity to said non-genomic DNA sequence, operably linked to a promoter functional in plant cells. The claims are also drawn to methods for positively or negatively effecting plant cell division, for generating polyploid plant cells, and for producing transgenic plants, by transforming plant cells with said DNA vector. The claims are further drawn to a method for modulating DNA replication in plant cells by conferring to them the capacity to provide in a sufficient amount the protein or peptide encoded by said non-genomic DNA sequence. The claims are additionally drawn to a plant cell, plant, progeny and plant material comprising said DNA vector or produced as a consequence of performing said methods.

The specification describes a single 2434 base pair non-genomic cDNA sequence of SEQ ID NO:9 obtained from the plant *Arabidopsis thaliana* that encodes a protein having amino acid sequence homology to the CDC27 protein of the yeast *Schizosaccharomyces pombe*, which is part of a high molecular weight complex known as the anaphase promoting complex (APC) or cyclosome (page 2 lines 18-29; sequence listing). The specification also describes SEQ ID NO:9 as comprising a 24 amino acid domain of SEQ ID NO:6, part of a conserved CDC27 N-terminal domain whose role is not currently known but whose conservation suggests its indispensability for CDC27 function (page 6 lines 3-29; sequence listing). The specification does not describe other non-genomic DNA sequences coding for a protein or peptide having at least 50% amino acid sequence identity to a protein or peptide comprising an amino acid sequence of SEQ ID NO:6, or DNA sequences having at least 75% nucleotide sequence identity to said non-genomic

DNA sequence. The specification also does not describe the structural features of a protein or peptide comprising SEQ ID NO:6 that would be retained by functional variants having at least 50% amino acid sequence identity to SEQ ID NO:6 or encoded by DNA sequences having at least 75% nucleotide sequence identity to said non-genomic DNA sequence.

The Federal Circuit has recently clarified the application of the written description requirement. The court stated that "A description of a genus of cDNAs may be achieved by means of recitation of a representative number of cDNAs, defined by nucleotide sequence, falling within the scope of the genus or of a recitation of structural features common to members of the genus, which features constitute a substantial portion of the genus." See *University of California v. Eli Lilly and Co.*, 119 F.3d 1559, 1569; 43 USPQ2d 1398, 1406 (Fed. Cir. 1997). In the instant case Applicant has not described a representative number of species falling within the scope of the claimed genus, nor the structural features unique to the genus.

Claims 10-11, 14-15, 17-21 and 23-28 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The claims are drawn to a DNA vector comprising a non-genomic DNA sequence coding for a protein or peptide comprising an amino acid sequence of SEQ ID NO:6 or an amino acid sequence having at least 50% amino acid sequence identity thereto, or a DNA sequence having at least 75% nucleotide sequence identity to said non-genomic DNA sequence, operably linked to a promoter functional in plant cells. The claims are also drawn to methods for positively or

negatively effecting plant cell division, for generating polyploid plant cells, and for producing transgenic plants, by transforming plant cells with said DNA vector. The claims are further drawn to a method for modulating DNA replication in plant cells by conferring to them the capacity to provide in a sufficient amount the protein or peptide encoded by said non-gemonic DNA sequence. The claims are additionally drawn to a plant cell, plant, progeny and plant material comprising said DNA vector or produced as a consequence of performing said methods.

The specification discloses the isolation from *Arabidopsis thaliana* of a 2434 base pair cDNA sequence of SEQ ID NO:9, designated CDC27A1, obtained by PCR using oligonucleotide sequences that correspond to the conserved regions of CDC27 homologue genes (pages 36-37). The specification also discloses that a comparison between CDC27A1 and a corresponding genomic sequence identified in EMBL databases (Accession No. AC001645) indicates the presence in CDC27A1 of two novel exons, encoding SEQ ID NOS 6 and 9 respectively (page 37 lines 3-16). The specification additionally discloses that the novel exon encoding the amino acid sequence SEQ ID NO:6 corresponds to a CDC27 N-terminal domain the role of which is not currently known but whose conservation suggests its indispensability for CDC27 function. The specification further suggests that proteins comprising this exon may promote APC-substrate action, and that peptides comprising this exon could be used to occupy substrate binding region for the APC complex (page 6 lines 3-29). The specification does not disclose whether the cDNA sequence of SEQ ID NO:9 or its novel exon sequence encoding SEQ ID NO:6 exhibit any specific function or encode a protein or peptide that exhibits a specific function. The specification also does not disclose the effect of transforming a plant or plant cell with such sequences.

Guidance for making and using the claimed invention is necessary because it is unpredictable whether and how a peptide of SEQ ID NO:6 or a protein comprising a peptide domain peptide of SEQ ID NO:6 will function to affect DNA replication and cell division in plant cells. It is unpredictable because the function of SEQ ID NO:6 and its corresponding domain in other CDC27 proteins is unknown.

The specification teaches that the CDC27 protein is known in the art to be a part of a high molecular weight complex referred to as the anaphase promoting complex (APC) or cyclosome, which in yeast is composed of at least 8 different proteins (page 2). The specification also teaches that it is known in the art that the APC functions to target substrates for proteolytic degradation by catalyzing the ligation of ubiquitin to the substrates, resulting in the restriction of DNA replication to occur only once during the cell cycle (pages 2-3). The specification additionally teaches that it is known in the art that at least CDC16, CDC23 and CDC27 require phosphorylation in the M-phase for activation (page 2 lines 37-39). The specification further teaches that the CDC27A1 exon encoding the amino acid sequence SEQ ID NO:6 corresponds to a CDC27 N-terminal domain whose role is not currently known (page 6 lines 3-29). Since the role of the CDC27 domain corresponding to SEQ ID NO:6 is unknown, and since CDC27 is known to require both the presence of other proteins as well as phosphorylation for activation, which suggests that CDC27 comprises multiple distinct functional domains, it is unpredictable what specific function or effect would be exhibited by a peptide or protein comprising only a single domain corresponding to a single exon of CDC27A1, which is disclosed as being composed of 16 different exons (Figure 2).

Guidance for making and using the claimed invention is also necessary because the effect of expressing only part of a full-length polypeptide in transgenic plants is unpredictable. See, for example, Zhou et al. (Plant J. 2003 Aug;35(4):476-89), who teach that expression of an N-terminal truncation of the *Arabidopsis* cyclin-dependent kinase inhibitor ICK1 increases ICK1 effects on transgenic plants, whereas expression of a C-terminal truncation of ICK1 greatly reduces or abolishes ICK1 effects on transgenic plants, as compared to control plants expressing the full-length ICK1 protein (page 476 Abstract; page 479 Figure 2; page 480 Table 1). In the instant case neither the effect of expressing a full-length CDC27A1 sequence, nor the effect of expressing a peptide of SEQ ID NO:6, has been established.

Given the unpredictability of using a sequence encoding a peptide of SEQ ID NO:6 or a protein comprising a peptide domain peptide of SEQ ID NO:6, given the unpredictability of expressing in a transgenic plant a sequence encoding a peptide of SEQ ID NO:6 or a protein comprising a peptide domain peptide of SEQ ID NO:6, given the absence of guidance in the specification for using such sequences and for using plants and plant cells transformed therewith, given the lack of working examples, and given the breadth of the claims, which encompass not only sequences encoding a peptide of SEQ ID NO:6 or a protein comprising a peptide domain peptide of SEQ ID NO:6 but also numerous variants of such sequences, as well as their use in transgenic plants, it would require undue experimentation by one skilled in the art to make and/or use the claimed invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 25 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 25 is drawn to a plant obtainable by the method according to claim 17. However, the method according to claim 17 does not result in the production of a plant, as the method of claim 17 only requires the step of transforming plant cells.

Claims 27 and 28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Regarding claims 27 and 28, the phrase "such as" renders the claims indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Claim Rejections - 35 USC § 101 and 35 USC § 112

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 10-11 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 10-11 as written, do not sufficiently distinguish over nucleic acids as they exist naturally because the claims do not particularly point out any non-naturally occurring products. In the absence of the hand of man, the naturally occurring products are considered non-statutory subject matter. See Diamond v. Chakrabarty, 447 U.S. 303, 206 USPQ 193 (1980). The claims should be amended to indicate the hand of the inventor, e.g., by the insertion of "Isolated" or "Purified". See MPEP 2105.

Claims 24-28 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 24-28, as written, do not sufficiently distinguish over plant cells and plants as they exist naturally because the claims do not particularly point out any non-naturally occurring products. In the absence of the hand of man, the naturally occurring products are considered non-statutory subject matter. See Diamond v. Chakrabarty, 447 U.S. 303, 206 USPQ 193 (1980). The claims should be amended to indicate the hand of the inventor, e.g., by the insertion of language that indicates that they are transformed with or comprise the claimed isolated DNA sequence and/or the claimed DNA vector. See MPEP 2105.

Claims 10-11, 14-15, 17-21 and 23-28 are rejected under 35 U.S.C. 101 because the claimed invention is not supported by either a specific and substantial asserted utility or a well established utility.

The claims are drawn to a DNA vector comprising a non-genomic DNA sequence coding for a protein or peptide comprising an amino acid sequence of SEQ ID NO:6 or an amino acid sequence having at least 50% amino acid sequence identity thereto, or a DNA sequence having at least 75% nucleotide sequence identity to said non-genomic DNA sequence, operably linked to a promoter functional in plant cells. The claims are also drawn to methods for positively or negatively effecting plant cell division, for generating polyploid plant cells, and for producing transgenic plants, by transforming plant cells with said DNA vector. The claims are further drawn to a method for modulating DNA replication in plant cells by conferring to them the capacity to provide in a sufficient amount the protein or peptide encoded by said non-gemonic

DNA sequence. The claims are additionally drawn to a plant cell, plant, progeny and plant material comprising said DNA vector or produced as a consequence of performing said methods.

The teachings of the disclosure are set forth above in the written description and enablement rejections made under 35 USC 112, first paragraph.

The claimed invention is not supported by a well established utility because the prior art does not disclose any well known use for the claimed DNA sequences.

The claimed invention is not supported by a specific and substantial asserted utility because the specification does not establish that the claimed sequences have any such utility. While the disclosure suggests that the claimed sequences would be useful for affecting DNA replication and cell division in plant cells, claims 10 and 11 do not recite, and the specification does not disclose, any specific function exhibited by the claimed DNA sequences, or the protein or peptides they encode, that is associated with DNA replication or cell division in plant cells. Claims 10 and 11 also do not require, and the specification does not disclose, the presence of any specific structural region or amino acid residues essential to a specific function associated with DNA replication or cell division in plant cells. In this regard it is noted that the rejected claims are not limited to a particular nucleotide sequence encoding a particular peptide or protein that has an inherent activity; the rejected claims also encompass numerous sequence variants that are structurally defined by their percent identity to a reference sequence, but that are functionally unqualified.

Furthermore, while the disclosure suggests that the claimed sequences would be useful for affecting DNA replication and cell division in plant cells, this suggestion appears to be based solely on the general homology between the disclosed CDC27A1 sequence and CDC27

sequences obtained from other organisms. The specification does not, however, disclose the nature and extent of specific homology between the claimed CDC27A1 exon sequence encoding SEQ ID NO:6 and the corresponding domain of other CDC27 proteins, or whether and to what extent this domain is essential for CDC27 function. The specification in fact discloses that the CDC27A1 exon encoding SEQ ID NO:6 corresponds to a CDC27 N-terminal domain whose role is not currently known (page 6 lines 3-29). The specification also does not provide any empirical data to support any specific function, for the CDC27A1 sequence itself, or for its encoded protein or peptides.

Claims 10-11, 14-15, 17-21 and 23-28 are also rejected under 35 U.S.C. 112, first paragraph. Specifically, since the claimed invention is not supported by either a specific and substantial asserted utility or a well established utility for the reasons set forth above, one skilled in the art clearly would not know how to use the claimed invention.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 10-11 and 14-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Rounsley et al. (EMBL Accession No. B78168, T31I20TF TAMU *Arabidopsis thaliana* genomic clone T31I20TF, genomic survey sequence, 16 January 1998).

The claims are drawn to a DNA vector comprising a non-genomic DNA sequence, including a sequence substantially free of sequences intervening the coding sequence, coding for a protein or peptide comprising an amino acid sequence of SEQ ID NO:6 or an amino acid sequence having at least 50% amino acid sequence identity thereto, or a DNA sequence having at least 75% nucleotide sequence identity to said non-genomic DNA sequence, operably linked to a promoter functional in plant cells.

Rounsley et al. teach a cloned DNA sequence coding for a protein or peptide comprising an amino acid sequence having at least 50% amino acid sequence identity to SEQ ID NO:6. The sequence taught by Rounsley et al. is presumed to be contained in a vector as it was obtained by cloning. The sequence taught by Rounsley et al. is also presumed to be operably linked to a promoter functional in plant cells as it is obtained from plant genomic DNA. While the sequence taught by Rounsley et al. is not "non-genomic", the limitation "non-genomic" as it used in the rejected claims does not impose any specific discernable limitations on the claimed DNA sequences that would distinguish them from the sequence taught by Rounsley et al., as the specification does not define "non-genomic", and as both the claimed DNA sequences and the sequence taught by Rounsley et al. are composed of the exact same material, i.e. nucleotides. The sequence taught by Rounsley et al. is also considered to be "substantially free of sequences intervening the coding sequence", as the specification does not define "substantially free of sequences intervening the coding sequence", and as the sequence taught by Rounsley et al. comprises only those sequences that would naturally intervene and subsequently be removed from the coding sequence.

Claims 10-11 and 24-28 are rejected under 35 U.S.C. 102(b) as being anticipated by Hemerly et al. (EMBO Journal, Vol. 14, No. 16, August 15, 1995, pages 3925-3936, Applicant's IDS).

The claims are drawn to a non-genomic DNA sequence, including a sequence substantially free of sequences intervening the coding sequence, coding for a protein or peptide comprising an amino acid sequence of SEQ ID NO:6 or an amino acid sequence having at least 50% amino acid sequence identity thereto, or a DNA sequence having at least 75% nucleotide sequence identity to said non-genomic DNA sequence, and to plant cells, plants and plant parts.

As discussed above in the rejection of the claims under 35 USC 101, the claims as written do not sufficiently distinguish over nucleic acids, plant cells and plants as they exist naturally, because the claims do not particularly point out any non-naturally occurring products. Accordingly, the rejected claims are anticipated by any reference that discloses *Arabidopsis thaliana* plants, as such plants would inherently contain the claimed DNA sequence. Accordingly, the cited reference of Hemerly et al. anticipates the claimed invention, as it discloses *Arabidopsis thaliana* plants (page 3926, column 2, last paragraph). Amendment of the claims to indicate the hand of the inventor, as suggested above in the rejection of the claims under 35 USC 101, would overcome the rejection.

Remarks

No claim is allowed.

Claims 17-21 and 23 are deemed free of the prior art, due to the failure of the prior art to teach or suggest plant transformation methods utilizing a non-genomic DNA sequence coding for

a protein or peptide comprising an amino acid sequence of SEQ ID NO:6 or an amino acid sequence having at least 50% amino acid sequence identity thereto, or a DNA sequence having at least 75% nucleotide sequence identity to said non-genomic DNA sequence.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cynthia Collins whose telephone number is (571) 272-0794. The examiner can normally be reached on Monday-Friday 8:45 AM -5:15 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amy Nelson can be reached on (571) 272-0804. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Cynthia Collins Cynthia Collins 4/5/04